Oak Ridge Enhanced Work Planning

EWP "Success Story" Verification and Validation August 8, 1997

EWP V&V : #001

Title: **Calculation of $545,000 Annual Cost Avoidance**: Enhanced Use of Standing Work Packages and "Binning" of Low Hazard/Skill of the Craft Maintenance Job Requests

Location: 9212 Resumption Project,Y-12 Plant, Oak Ridge

Primary Affected Groups:

- Planners, Facilities Management Organization, Y-12
- Craft
- Maintenance Coordinators, Enriched Uranium Operations

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Time Frame: March through July 1997

Summary:

EWP efforts at Y-12 have resulted in a predicted annual cost avoidance of $545,000 from economies of scale associated with combining of low hazard/ "skill of the craft" maintenance jobs into logical groupings or "bins". The predicted cost avoidance stems from 1) re-defining criteria that allows more jobs to be issued under simple "skill of the craft" controls; and 2) setting up mechanisms whereby single Maintenance Job Requests (MJRs) can better include multiple tasks or jobs having similar elements. By allowing certain similar tasks or jobs to be "binned" together, fewer MJRs are now required. This eliminates time spent performing non-value-added activities and results in other economies of scale. (see attached details)

Approvals:

Ray Smith	Deputy Manager, FMO, Y-12	_____	_____
James Bolon	Maintenance Manager, EUO Resumption	_____	_____
Roy Stalliongs	Planning Manager, FMO, Y-12	_____	_____
Charlie Boriff	Millwright, FMO, Y-12	_____	_____
Fran Roach	Electrician, FMO, Y-12	_____	_____

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Calculation of $545K Cost Avoidance From EWP Work Control Enhancements At 9212 Resumption, Y-12 Plant

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Background:

The Y-12 EWP team has enhanced and re-instituted a 'Standing Work Package'/ 'Skill of the Craft' (SWP/SOC) process for the 9212 Resumption effort. This SWP/SOC process has already reaped significant dividends and is anticipated to result in an annual cost avoidance of approximately $545,000 without sacrificing needed organizational controls or safety. In summary, the cost avoidance calculated deals with two distinct but related enhancements:

1) putting in place mechanisms whereby "skill of the craft" (SOC) is better defined and utilized so as to reduce unnecessary, non-value-added formal planning packages; and

2) "binning" similar SOC-type maintenance jobs into "Standing Work Packages" so as to further reduce unnecessary paperwork and increase the amount of work that can be accomplished by an individual maintenance work request instead of needing to work-up multiple work requests.

Specifically, clarifications and enhancements were made to the existing work control system such that many jobs could be linked or "binned" together based on logical criteria (e.g., same system or process, same piece of equipment, etc.). Now, once jobs are screened and placed in appropriate bins (and assuming a variety of criteria are met which ensures that highly hazardous, complex, or non-routine jobs are excluded from the binning process), the collection of jobs is planned and processed together rather than separately. This reduces the number of Maintenance Job Request requiring "Full Package" planning and allows work to commence simply using "SWP/SOC" cards issued to the work crew by planners and supervisors. The Y-12 EWP Team, (a multi disciplinary group made up of safety and health professionals, planners, craft, etc.) ensured that all applicable requirements such as hazard analysis, job tracking, and job close-out were being satisfactorily met by the enhanced system and that the existing Y-12 maintenance computer system (COMPASS) was effectively utilized.

The economy of scale associated with 'binning' low hazard/low complexity jobs (such as labeling, circuit tracing, relamping) has resulted in reducing the planning time to well under one

quarter of what it would have otherwise taken (i.e., from about an average of four- eight hours planning for each of the "full package" jobs to about 15 minutes). Planners can now devote more time to the unique details of the jobs within the bins instead of dwelling on assembling paperwork and obtaining signatures which were determined to provide little value to the worker or the overall work control process.

Other economies of scale resulting from these enhancements include:

-- only one RWP is now needed for multiple jobs instead of one for each redundant work package;
-- overall travel time and dress out time is reduced since it was made easier to take care of multiple jobs while in an area; (this also results in ALARA goals being better achieved);
-- the required outages needed to accomplish maintenance work are reduced;
-- waste handling and processing is minimized (disposables, cleaning materials, etc. are reduced); and
-- time required for entering information into COMPASS is dramatically reduced since SOC/SWPs are used rather than MJRs.

Cost Reduction Assumptions:

1. 100 packages per month will now be "binned"; Equates to 1200 packages per year.

2a. Average time savings for planning organization for every package that is "binned" rather than fully planned: 1 1/2 hours/package
b. Average burdened rate of planner: $53.35/hour

3a. Average time savings for work crew to review a less complicated work package (less "boilerplate"/more value added details): 2 man hours/package
b. Average burdened hourly rate of work crew member: $63.70/hour

4a. Average time savings for project management, data entry personnel and other work package reviewers (e.g., customers, S&H, facility owners, etc.): 2 man hours/package
b. Average burdened rate of other work package reviewers: $59.46/hour

5a. Average time savings associated with "Other Economies of Scale" (e.g., dress out, waste handling, RWP, etc.): 2 man hours/package
b. Average burdened rate of personnel involved: $63.70/hour

Cost Reduction Calculation:

o (1200 packages/year) x [(1.5 planner hours /package x $53.35/hour) + (2 work crew man hours/package x $63.70/hour) + (2 'other reviewer" hours/package x

$59.46/hour) + (2 ‘other economies’ hours/package x $63.70/hour)]
= $544,494/year

Cost Additions Assumptions: --none--

Net Cost Avoidance (Cost reductions less cost additions): $545,000